PNEUMONIA, MALIGNANT ENDOCARDITIS OF TRICUSPID VALVE.

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Mrs. L., æt 40, was admitted to the Montreal General Hospital on March 25th, 1898, complaining of pain in the left side and difficulty in breathing. Two years ago she had an attack of pneumonia ; with this exception she has always enjoyed good health.

Her present illness began on March 18th, with a chill, lasting for 10 or 15 minutes, and followed by profuse sweating. She took to bed and woke up the following morning with severe pain in the left side.

Note on admission.—The patient is a fairly nourished woman, the face is flushed especially on the right side. The skin is moist and cool, the temperature 102.5°, the panniculus and muscles fairly developed. There is a short cough without expectoration, the respirations are 28 and accompanied by dilatation of the alæ nasi.

There is marked dulness over the lower lobe of the left lung (*i.e.* from a line running from the third spine to the lower axillary region), with blowing breathing and bronchophony over the dull area, and a few fine crepitations in the lower axilla.

The apex impulse is in the normal site, the sounds are normal, and there is no pulmonary accentuation. The pulse is compressible and of fair value, 136 on admission and 120 two hours later.

The tongue is thickly coated anteriorly, clean posteriorly. The abdomen is moderately full and tympanitic, but not rigid. Hepatic dulness extends from the 7th rib to the costal border, measuring 2 in. The spleen is not palpable, and its area of dulness not increased. The urine is acid, 1012, dark amber color, a large trace of albumen, and a few granular and hyaline casts.

March 28th. Crepitation is added to the tubular breathing on the left side. At the base of the right lung a small area of tubular breathing and crepitation, but with no obvious dulness. The patient is dusky, the pulse small and varying from 100 to 120, the temperature irregular, the highest point since the 25th being $102\frac{3}{5}°$, the lowest at 4 a.m. to-day 98.4°. Diarrhœa set in to-day, there being nine loose

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stools. At 3.55 this afternoon she had a rigor, the temperature rising to 104⅘°, lasting for five minutes, and followed by profuse sweating.

March 30. There was a slight rigor at midnight, severe headache, and followed by profuse sweating. the temperature rose to 104⅕°, and the pulse to 144 at 4 a.m.; ten minutes later the temperature fell to 102. She slept badly, had a dry cough, and the diarrhœa continues, being somewhat controlled by starch and opium enemata. A pleuritic to and fro friction is present at the right base; otherwise the physical signs in the chest are unchanged. The splenic dulness reaches the costal border, but the organ is not palpable.

April 2. Two rigors occurred yesterday, the rectal temperatures reaching 105⅗° to 106⅕°. Following and preceding the rigors the temperature fell to normal. During the high temperature, the pulse became very weak and rapid, 160 to 168, and the respiration very labored, increasing from 24 to 28 up to 40 or 44.

The lungs as before, and the heart, which has been carefully examined daily, presents no murmur.

April 3. Dr. Gardner examined the fundi and reports them normal. A culture from the blood shows diplococci and staphylococci. Prostration is very marked, the 2nd sound is feeble, the first accentuated. The pulse varies with the temperature from 104 to 170, and once fell to 80. The temperature is remitting, rising from 103½° to 106° in the latter part of the day, and falling as low as 99⅖° in the morning. The last rigor, there being five altogether, took place on the 3rd. A dry cough without expectoration continues, and there are from three to four stools daily.

April 8. Lies propped up in bed owing to dyspnœa. Complains of severe pain at back of left knee; nothing made out objectively.

April 13. Breath extremely offensive for some days. Examination by Dr. Birkett shows atrophic catarrh and ozæna.

April 16. Prostration during last few days has become extreme. Temperature 105° to 106° in the afternoon without rigors, the minimum temperatures being 102° to 103°. Yesterday and to-day temperature 105° to 106°. The pulse rapid, 124 to 170, and weak. The mind has been clear throughout. The lungs when examined yesterday still showed the same evidence of consolidation. The heart, which has been daily examined, has been normal. Diarrhœa, 3 or 4 stools daily.

Death took place at 2 a.m. on the 17th April, the temperature rising before death to 108°.

Autopsy by Dr. Wyatt Johnston, showed a very unusual condition of the heart, there being acute endocarditis confined to the tricuspid valve. This valve was covered with polypoid vegetations as large

as cherries, forming a cluster and having a general appearance analogous to condylomata round an orifice. The tricuspid orifice though somewhat obstructed by these vegetations, was neither dilated nor stenosed, the other orifices were of normal size. The mitral valve was very slightly thickened, but free from vegetations. None of the heart cavities were dilated. The character of the vegetations was peculiar. They were white, rounded and very firmly attached to the valve and had not led to destruction or perforation, their appearance being rather that of mural thrombi in the heart than usual vegetation. This made it appear as if the peculiar lesions in this case resulted from an antecedent right heart thrombosis. The auricular surface of the tricuspid was the part effected; the auricle itself being free except for a small thrombosis the size of a pea about one-half inch above the ring. Microscopical examination showed large numbers of large lancet shaped diplococci staining by Grams' method about twice the size of the pneumococcus, also a number of short coccus chains of four elements staining by Gram. The diplococci grew on blood serum and gave an abundant greyish growth; injections of the cultures into mice failed to kill them. It was suggested by Dr. Finley that they might be involution forms of the pneumococcus which had lost virulence during the chronic course of the case.

The spleen and kidneys showed extreme cloudy swelling, but neither showed emboli. On the other hand in the small branches of the pulmonary artery of both lungs, there were several areas of necrosis and softening surrounded by areas of pneumonia. In other parts of the lungs partly decolourised infarcts existed surrounded by pneumonic areas. Near the root of the lung were firm areas of interstitial pneumonia, the lung process showing different dates or recurrences of infection. The cultures from the lungs showed pneumococci, staphylococci, auris and streptococci; The thrombi in the lung arteries had the same white rounded appearance as the cardiac vegetations.

On the entry of the patient the case presented the typical picture of acute lobar pneumonia of a moderately severe type. It was not until the 11th day, when the rigor took place, that a complication was suspected, and after the second rigor I was strongly inclined to regard the condition as one of malignant endocarditis. This seemed to be the only explanation for the septic condition of the patient, and the preceding pneumonia also supported this supposition. The marked and early prostration was a striking feature and was a strong point in favour of this opinion. The spleen, which was of normal size on admission, was first noticed to be enlarged on the 30th and was in accord with a septic condition.

The case lacked the conclusive evidence of the development of cardiac murmurs and of emboli.

Although carefully examined daily there were no murmurs, and this was fairly well explained by the condition of the tricuspid valve which was competent, whilst the heart's action was doubtless too weak to generate a direct murmur, and beyond the evidence of cardiac weakness present in any severe septic state, there was no signs of any abnormality.

The limitation of the endocarditis to the tricuspid valve explained the absence of arterial emboli, which is such a marked feature of most cases of ulcerative endocarditis.